



LOW IMPACT DEVELOPMENT LOCAL REGULATION ASSISTANCE PROJECT 2005 PROJECT SUMMARY

INTRODUCTION

The overall goal for this project was to work with teams of staff from 11 Puget Sound local governments to develop new and/or revise existing local government regulatory language related to stormwater management and land development to increase the use of low impact development (LID) practices.

The ultimate goal for the project (that extends beyond the life of this project) is for staff and managers at the 11 local governments to present the draft regulatory changes and other recommendations related to LID to the elected officials at the local governments for their consideration for adoption, thereby removing the regulatory hurdles that prevent or impede the use of LID.

SCOPE OF SERVICES

To achieve the overall project goals, staff from the Puget Sound Action Team (PSAT) and AHBL designed the project to occur in each community with the following general steps:

- Introductory meeting: PSAT and AHBL staff met with local government staff and sometimes elected officials to explain how the project would work and to gain an understanding of local political, economic, and environmental conditions that might influence the success of the project. The meeting also served to uncover specific implementation issues identified by local planning and public works staff members.
- Agreement on scope: Local government staff, PSAT staff, and AHBL staff agreed on a scope of services. The scope of services generally identified the scope of the regulations that would be reviewed for impediments to LID, specific chapters that would be substantially changed or created anew, and other standards such as stormwater best management practices or road details that the jurisdiction wanted prepared.
- Review of existing regulations and preparation of regulatory language: AHBL staff reviewed existing regulations for impediments to LID, prepared amendments to existing local regulations, and prepared new ordinances where an equivalent local government regulation could not be reasonably amended to facilitate LID.
- Transmittal and review of draft materials by local government staff: AHBL staff transmitted the draft regulatory amendments and new code sections to local government staff prior to a second meeting with local government staff. Local government staff reviewed the documents and provided further input to AHBL staff.
- Regulatory language final draft: AHBL staff prepared final drafts of the regulations and standards consistent with comments provided during second meetings with local government staff and other discussion with staff from PSAT, UW, WSU Cooperative Extension, and Department of Ecology.



OVERVIEW AND COMMON THEMES

Overview:

The group of jurisdictions that participated in the project varied widely with respect to their experience and exposure to LID as well as the number and type of developers and designers in each of their communities that used, or wished to use, LID techniques.

From our initial meetings with local government staff, it was obvious that past and ongoing outreach efforts by PSAT staff and others imbued many local government staff with considerable knowledge of the tenets of LID. That said, most local government regulations and standards still either outright prohibit or significantly discourage the use of LID.

We encountered challenges regarding competing priorities. For example, other state initiatives, most notably Growth Management Act requirements to update local critical areas ordinances, stormwater management plans and other regulations directed the time and attention of local government staff employees away from LID. Many of the participating jurisdictions therefore expressed considerable gratitude that the deliverables consisted of “ready-for-adoption” ordinances and standards rather than other forms of technical advice.

The budget associated with the project, vis-à-vis the number of participating jurisdictions, required decisions be made on priorities by local governments. Many of the jurisdictions had more regulations that needed revision than could be accommodated within the scope of the project. This was particularly true of those jurisdictions facing an update to their stormwater management plans. This seemed to impact the county participants more than the city participants. For instance, many of the county participants were dealing with areas within their jurisdiction with varying degrees of support for LID, as well as considerable differences in microclimates, geology, and critical resources.

Common Themes:

Project Scope

After scheduling kick-off meetings and engaging in telephone calls with the grant participants, the scope of modifications to the local government regulations generally included one or more of the following:

1. Zoning Code
 - a. Bulk and dimension requirements covering (1) minimum landscape requirements by zone; (2) impervious surface limits by zone
 - b. Planned unit development (PUD) required findings to recognize LID as an amenity warranting PUD approval
 - c. Parking standards
2. Subdivision Code
3. Public Works Standards
 - a. Road standards allowing for more narrow rights-of-way, reductions in impervious surface, alternative surfacing methods for shoulders and walkways, and bioretention facilities in roadside swales
 - b. Stormwater management regulations allowing the recognition and application of the integrated management practices (IMPs) found in the *Low Impact Development Technical Guidance Manual for Puget Sound (January 2005)* and the best management



practices (BMPs) found in the latest *Department of Ecology Stormwater Management Manual for Western Washington*

We learned an important lesson early in the project: Scale the level of technical assistance relative to the project budget and the grantee's expectations. Several jurisdictions were forced to prioritize their issues and were not able to include tangential yet important issues such as critical area regulations.

What constitutes an LID Project?

During our first meetings with the participating jurisdictions, it became obvious that the mechanics of making changes to ordinances under the topics above would require considerable care. The publicity of LID has resulted in several instances where a project applicant has told a jurisdiction that a project was a "low impact development" worthy of either approval or some form of incentive.

No doubt some of the proposals would likely warrant recognition as credible additions to the local inventory of LID projects in Washington. However, as one local government staff member lamented, some proposals clutched to the LID term by offering up little more than narrow roads – "a wolf in sheep's clothing."

While some communities sought changes to regulations that would provide incentives for LID, others explored a prescriptive approach that would mandate LID community-wide or in the most sensitive basins.

Because low impact development involves surface water management techniques that do not always translate exactly into zoning terms, local government staff requested that the consultant team define an LID project. This required extensive internal and interagency conversation to determine what thresholds were appropriate to receive the LID label. While unexpected, this important facet allows local governments to recognize LID projects whether prescriptively required or incentive based.

Grantee Meeting and Document Review Process

Most jurisdictions formed some type of internal technical working group or committee. Where these committees contained staff with broad expertise in surface water management and land use planning, the results were more successful. Meetings with multiple groups within a single jurisdiction proved difficult due to the varied understanding of project goals and project status.

A local project manager who is active and engaged is also helpful. Where the project manager acted as a point person in making sure that colleagues provided timely comments and reviewed the materials the assistance proved more effective in achieving the project goals.

We hope the enclosed draft regulatory changes and other recommendations prove valuable to not only the 11 local governments directly involved in this assistance project but also to all local governments in Puget Sound that wish to bring LID to their communities.



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Scope of Assistance:

The kickoff meeting with the City of Bellingham occurred on June 7, 2005. At that meeting, City staff directed the consultant team on the content of the desired technical assistance. The following are the areas of emphasis that staff directed the team to pursue:

- An integrated ordinance for city-wide application
- Regulations to limit the amount of land on a development site converted to impervious surface
- Methods to transfer development or impervious surface credits
- Ways to facilitate retrofits of existing development and streetscapes
- Eliminate surface parking requirements or establish maximums
- Reconcile existing lot coverage and open space requirements to make more functional use of property
- Propose a refined definition of open space
- Review the existing code for integration of LID techniques
- Provide existing documentation on reduced street standards and emergency vehicle access for the Fire Department
- Public Works would like a system that works in all places but addresses different parts of town

Specific tasks included the following:

- Draft code language addressing the staff concerns above to the extent possible within the scope of services
- Review and comment on Technical Study of Bellingham's Residential Development Code and Design Guidelines: Summary of Recommendations (MAKERS, 2004)
- Review code for consistency LID implementation

Several of the areas of staff interest listed above were either outside the scope of work for PSAT or were partially addressed in the proposed code amendments.

- Regulations should limit the amount of land on a development site converted to impervious surface
- Method to transfer development or impervious surface credits
- Incorporate ways to facilitate retrofits of existing development and streetscapes
- Eliminate surface parking or establish maximums

Findings and Observations:

In the future, a tool that may be helpful to focus initial discussions on code integration of LID would be an outline of the various land use/site development techniques and the specific BMPs. This should answer questions on what the jurisdiction currently allows, prohibits, changes desired, and how and where staff envisions code changes occurring. From this examination, an agreement on the scope of services could be negotiated, both between the staff and the consultant team and internally among the staff. While the



consultant team attempted to focus the initial discussions along these lines, Bellingham's project team's prior preparation generally included some level of gap analysis, but did not address code integration.

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Scope of Assistance:

The kickoff meeting with Clallam County occurred on July 8, 2005. Mr. Steve Gray had assembled a broad group that included members of the Public Works Department, Environmental Health Department, Clallam Conservation District, and Planning Commission.

At that meeting, County staff directed the consultant team on the content of the desired technical assistance. The following are the areas of emphasis that staff directed the team to pursue:

- Prepare a grading ordinance that would incorporate LID
- Prepare landscaping and native vegetation standards
- Review the County's draft stormwater management ordinance
- Provide cost comparisons that staff can use to educate policy makers and developers that LID techniques are no more expensive than conventional development techniques

This direction resulted in the preparation of the following work products:

- Draft Grading Ordinance
- Landscaping and Native Vegetation
- Draft Stormwater Management Ordinance
- Planned Low Impact Developments (PLID)
- Cost Comparison
- Roof Downspout Controls
- Incentive Matrix
- Road Sections

Findings and Observations:

Clallam County's existing development regulations generally did not provide any incentive to use LID. Currently, Clallam County's storm water management regulations only apply on sites encumbered with critical areas.

The grant request from Clallam County requested the preparation of a grade and fill ordinance. The grade and fill ordinance that was transmitted to Clallam County was prepared based on the draft CTED/DOE model ordinance. The model ordinance references LID best management practices identified in the Stormwater Management Manual for Western Washington (Washington State Department of Ecology, April 2005).



The consultant team also prepared road sections and provided copies of downspout control standards and details. Finally, to respond to questions concerning the cost of using LID best management practices, the consultant team provided a cost comparison between LID and conventional stormwater management techniques.

The consultant team's experience with Clallam County was different than anticipated. Research and preparation prior to the kickoff meeting revealed that the County had neither grading nor drainage ordinances. Clallam County staff was very familiar with the tenets of LID. Staff had considered how to implement LID across the variety of watersheds found in Clallam County. Future grants to jurisdictions without a grading or storm drainage ordinance may be more effective if broadened to include a wider range of policy updates or technical assistance during the adoption phase.

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Scope of Assistance:

The kickoff meeting with City of Issaquah staff occurred on June 15, 2005. At that meeting, City staff directed the consultant team on the content of the desired technical assistance. The following are the areas of emphasis that staff directed the team to pursue:

- Review of BAS reports to recommend where LID would be most beneficial
- New LID chapter for inclusion in the land use code
- Review Stormwater Chapter IMC 13.28
- Review street standards and recommend LID options
- Review Parking Standards IMC 18.09
- Review Impervious Surface-Pervious credits interpretation IMC 18.07.050.B.8
- Review Landscaping Standards IMC 18.12
- Review Clearing and Grading IMC 16.26
- Provide maintenance information and costs

To identify areas of the City where specific LID techniques would have greater applicability and benefit, the Team reviewed the City's Best Available Science 2004 report and the Stormwater Infiltration Evaluation prepared by Golder Associates. Municipal code review included the following titles:

- Title 12, Streets, Sidewalks and Public Places
- Title 13, Public Services
- Title 16, Buildings and Construction
- Title 18, Land Use Code

The review focused on issues and questions raised by staff, code provisions that currently may preclude or create an impediment to the implementation of LID, provisions that serve to educate the public and development community on the intent and benefit of LID, and a new chapter to build on the existing Chapter 13.28, Deviations for low impact development proposals.



In conducting the code review, the consultant team found that the City of Issaquah had a number of existing provisions that currently support the implementation of LID, including:

- Liberal provisions for clustering
- Amended soil standards
- Allowances for the full dispersion BMP in Chapter 13.28

Findings and Observations:

For the purposes of LID, clustering is a good tool to reduce impervious surfaces by confining the building envelope and to allow the preservation of native forest areas. Tree cover intercepts falling rain and forest soils and vegetation are beneficial in retaining and infiltrating stormwater. The existing standards do not refer to preservation of native open space as a justification for clustering. Our proposed changes would correct this.

Staff requested that the LID assistance include review of the City's street standards. Under the draft 2002 standards, neighborhood and inter-neighborhood streets start at a 24-foot minimum pavement width without parking and add expand eight feet for additional parking lanes. Curbs are evidently required for all roadway classifications. Implementing these reductions to the current standard would be an improvement in reducing impervious surface area. There is no "LID standard" for roadway widths. The consultant team encourages the City to adopt, as a general or special case standard, the smallest possible width that preserves the functionality of the roadway for all of its purposes. Issaquah has the advantage of having tested various roadway systems, including queuing lanes, and consequently staff is aware of the minimum width necessary to meet the City's functional needs.

In addition to reductions in required roadway width, the City may wish to consider the use of bioretention for street drainage. This can take the form of bioretention swales along the street, as implemented by Seattle Public Utilities. Bioretention can also be incorporated in traffic calming systems such as chicanes or chokers both in new streets or retrofits. Since chicanes and chokers are among the City's traffic calming tools, these may be worthy of consideration.

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Scope of Assistance:

The kickoff meeting with Jefferson County staff occurred on June 8, 2005. Mr. Josh Peters, local project manager, assembled a technical review team that included members of the Long Range Planning Division, Current Planning Division, Public Works Department, Fire Department, and the Building Department. At that meeting, County staff directed the consultant team on the content of the desired technical assistance. The following are the areas of emphasis that staff directed the team to pursue:



- Civil checklist for applicants
- Informational brochure for DCD counter
- Incorporate the Technical Guidance for Grading into the County's grading and excavation code
- Clustering incentives in the PRRD

Jefferson County already adopted the 2005 Department of Ecology Manual, so the focus of the amendments was focused on implementation of LID through the Planned Rural Residential Developments (PRRDs) and making grading and drainage standards more LID friendly. The companion to the PRRD amendment was the preparation of a Planned Low Impact Development (PLID) chapter that defined the extent to which the use of LID techniques would warrant an incentive. The following materials were prepared and/or reviewed:

- Preparation of a Planned Low Impact Developments (PLID) Chapter
- Preparation of an Incentive Matrix that can be used with the PLID Chapter
- Preparation of an Informational brochure for DCD counter
- Revisions to the County's grading ordinance to incorporate the DOE/CTED technical guidance on grading
- Parking Comparison and Recommendations

Findings and Observations:

Jefferson County was that its road standards were defacto LID by virtue of the width and open drainage conveyance design. Jefferson County staff contended that much of the County was already "accidentally LID." To facilitate the use of LID techniques by Jefferson County developers and landowners, staff indicated a strong preference for incentives over prescriptive requirements.

County staff requested technical assistance in defining the character of a project that would warrant an incentive. Staff noted that in singular the use of a narrow road section or a grass lined swale was not sufficient to warrant an incentive. The consultant team agreed. Staff noted that the use of these techniques in combination (when designed to the Puget Sound Action Team's *Low Impact Development Technical Guidance Manual for Puget Sound*), might warrant the granting of an incentive.

Jefferson County staff was the first of several jurisdictions to ask the consultant team to define an "LID project." The result of the request posed by Jefferson County and other jurisdictions was the preparation of the PLID chapter.

There was one item that Jefferson County requested which the allocation of project time and budget could not accommodate. Jefferson County requested a small projects checklist that would enable a property owner to design a small project using LID best management practices without the need of an engineer. This request is an item that may warrant future research.



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Scope of Assistance:

On July 28, 2005, AHBL and PSAT staff met with Kitsap County staff to discuss opportunities to introduce and/or integrate low impact development more effectively into County code. During the meeting, County staff noted that the Home Builders Association of Kitsap County received a large grant to further assist County staff with the integration of low impact development into County codes. Because of the other pending assistance, County staff requested a focused list of technical assistance that included the following:

- Review potential impediments within Kitsap County Code Title 16 – Subdivision Code
- Create more technical deviation language more friendly to Low Impact Design
- Review and compare parking standards with other jurisdictions
- Consider increased vegetation standards, obtained through incentives
- Look for ways to use incentives to encourage LID projects with incentives

As a result of the meeting and the consultant team's review of the County Code, the following materials were prepared and/or reviewed:

- Preparation of a Planned Low Impact Developments (PLID)
- Preparation of Cost Comparison
- Preparation of an Incentive Matrix
- Revision to Technical Deviation Language
- Revision to the Performance Based Development Chapter to recognize LID as something that warrants PBD approval
- Preparation of a Landscaping and Native Vegetation Chapter

Findings and Observations:

For the purposes of LID, clustering is a good tool to reduce impervious surfaces by confining the building envelope and to allow the preservation of native forest areas. Kitsap County's existing standards, principally its Performance Based Development (Chapter 17.425 KCC) requirements, do not refer to preservation of native open space as a justification for clustering. The provision of active common space is the primary requirement to justify approval of an application for Performance Based Development approval. The consultant team prepared an alternative to this chapter which would for the same incentives that developers enjoy under Chapter 17.425 KCC for projects that preserve native forest areas.

Kitsap County staff were very knowledgeable about LID and provided detailed reviews of draft materials. Moreover, they assembled a large and diverse collection of staff for the kickoff meeting which was held



on July 28, 2005. Elected officials did not participate in the meetings. The participation of Mr. Art Castle of the Home Builders Association of Kitsap County suggests that the development community is interested in LID.

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Scope of Assistance:

The kickoff meeting with City of Marysville staff occurred on July 7, 2005. At that meeting, City staff directed the consultant team on the content of the desired technical assistance. The following are the areas of emphasis that staff directed the team to pursue:

- A new LID section
- Review existing code for conflicts with implementation of LID
- Create a flow chart/checklist for projects to qualify as LID
- Recommend amendments to specific code sections that may preclude application of LID
- Review street standards and recommend LID options
- Provide options for application in the downtown
- Provide a list of potential LID incentives
- Provide matrix of existing and proposed roadway standards to share among participating jurisdictions

Initial recommendations were discussed at a follow-up meeting on November 28, 2005. Subsequent to the second meeting, staff confirmed the general direction of recommendations and requested several modifications. Comments addressed minor adjustments and a request to draft a new chapter for regulation of LID projects.

The review focused on code provisions that currently may preclude or create impediments to the implementation of LID and opportunities to include LID techniques within the code framework. Based on this review, the consultant team updated the appropriate code sections.

Findings and Observations:

The road-width issue was a point of concern with Marysville staff. Since public safety concerns are often a common point of concern for fire protection agencies, it would be helpful to arm LID proponents with traffic engineering studies or comparative safety analyses to overcome the concerns about narrow roads. Although we conducted some limited research into such documentation as part of this project, but were unable to find generally applicable standards. Additional research is recommended.



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Scope of Assistance:

The kickoff meeting with City of Poulsbo staff occurred on June 10, 2005. Mr. Randy Kline, local project manager, assembled a large group that included representation from the Planning and Public Works departments, the offices of Cooperative Extension at the University of Washington and Washington State University, Home Builders Association of Kitsap County, and a local resident. At that meeting, City staff directed the consultant team on the content of the desired technical assistance. The following are the areas of emphasis that staff directed the consultant team to pursue:

- Review and provide recommendations for roof downspout controls
- Prepare narrow roads that included gutter and broken/notched curbs
- Evaluate and recommend amendments to the number of parking spaces required by use and the physical dimensions of the spaces
- Provide cost comparisons between LID and conventional site development practices
- Provide a framework for encouraging the use of LID through the use of incentives

This direction resulted in the preparation of the following work products:

- Roof Downspout Controls
- LID Road Sections
- Parking Comparison and Recommendations
- Cost Comparison Memorandum
- Planned Low Impact Developments (PLID)
- Incentive Matrix

In addition a draft grading ordinance that was prepared for use in Clallam County and other jurisdictions was provided to City staff for its review and consideration.

Findings and Observations:

The zoning and land use portions of the Poulsbo Municipal Code had very few impediments to the use of LID. The City's land use regulations were "LID friendly." The City's engineering staff had approved projects that contained LID BMPs in the past, but to do so would require a deviation or special approval from the City's engineer. The City had also made a long practice of requiring connection to a storm drain system rather than let project designers infiltrate, disperse or use other surface water management techniques.

The result was the preparation of road standards that would allow applicants by right to select a more narrow road template. The consultant team also introduced the City's engineering and planning staff to alternative downspout controls that would provide options to traditional pipe-conveyance techniques. The City's engineering staff also initially believed that use of LID techniques carried an additional cost. The



consultant team provided City staff with information that demonstrated that LID projects are no more costly than traditional designs. The analysis showed cost savings to the overall project that tends to increase as project size increases.

The local development community has requested the opportunity to use LID in project design, but City regulations do not provide measures by which this could without the construction of redundant systems or the approval of deviations by the City Engineer.

The consultant team was directed to prepare elective or incentive-based LID provisions. The result was the preparation of a new draft municipal code chapter entitled "Planned Low Impact Development (PLID)" that was based on modeling and surface water management requirements from the Stormwater Management Manual for Western Washington (Washington State Department of Ecology, April 2005).

Because the City of Poulsbo has not yet adopted the new DOE manual (or equivalent), the reductions in volume control and other incentives that are described in the PLID ordinance do not provide developable area equivalent to what would be lost by those that opt to use the new manual and employ the use of LID technologies.

On an interim basis, the City of Poulsbo may still enjoy the stormwater benefits that would accrue by the reduction of impervious surface and increase in native vegetation that is recommended by the consultant team. On a longer term basis, full implementation of LID will be enhanced by movement toward the adoption of the 2005 DOE Manual or technical equivalent.

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Scope of Assistance:

The kickoff meeting with City of Redmond staff occurred on June 15, 2005. At that meeting, City staff provided direction to the consultant team on areas of emphasis for LID regulatory assistance. These areas included:

- Draft LID Section for inclusion in the development guide
- Review of water and sewer construction standards for opportunities to change bedding requirements
- Review of street standards for incorporation of LID
- Summary of maintenance standards and methods
- Model site analysis documents from an existing LID project

This direction resulted in review by the consultant team of the following City of Redmond codes and standards:

- Ordinance 2259 – Critical Areas Ordinance and Natural Features Element
- RCDG 20.80, Landscaping and Tree Protection
- RCDG 20C.30-100, Maximum Lot Coverage of Structures



- RCDG 20C.30.25-110, Maximum Impervious Surface, plus associated site requirement charts for the various zoning districts
- Ordinance 2221, Redmond Shoreline Master Program
- RCDG 20E.90, Clearing, Grading, and Stormwater Management
- Clearing, Grading, and Stormwater Management Technical Notebook, Issue No. 4
- RMC Chapter 15.06, Fire Code
- Standard Specifications and Details for Public Works Construction
- 20D.180 Subdivision Regulations

The Redmond Municipal Code and Community Development Guide did not appear to include provisions that would preclude or conflict with the implementation of LID. Our only recommended revision to existing code standards involved soil amendment guidelines (RCDG 20D.10-170). In fact, the Development Guide has a number of provisions that appear to encourage and facilitate the use of LID techniques. Notable among these are:

- The Rustic Street Standards in RCDG Appendix 20D-3. While the standards appear to be intended only for the NE Rose Hill Subarea, the 20 foot street width with interspersed parking pockets and landscaped swale areas is an excellent template for a city-wide LID street standard.
- Clustering/development standard modification provisions in RCDG 20C.30.50, 20C.30.105, and 20C.60.60. Modifications to code standards allowed under these sections should provide sufficient latitude to developers interested in applying the land use portion of an overall LID approach.
- Preservation of trees and other native vegetation in RCDG 20D.80.20-070.

Notwithstanding the observations on the Redmond Municipal Code and Community Development Guide made above, the Clearing, Grading, and Stormwater Management Technical Notebook poses a significant obstacle to implementing LID in Redmond. The 2001 DOE Manual provides some options for LID techniques. However, a portion of these techniques are prohibited or conditioned to have limited application. Further, neither the 2001 DOE Manual nor the Notebook provides credit for the use of LID techniques. To address these issues, the consultant team recommended revisions to the Notebook intended to provide greater latitude to City staff to approve techniques where studies and supporting documentation are sufficient to establish that they are consistent site conditions and will not pose a threat to the aquifer or other properties.

The consultant team also prepared a new chapter for the Notebook describing the LID approach in sufficient detail to guide interested developers. The draft chapter specifies that the LID techniques currently approved by DOE in the 2005 Manual may be allowed.

Findings and Observations:

The consultant team was asked to integrate LID into the Redmond Municipal Code and Community Development Guide. Staff anticipates that the City will adopt the *Stormwater Management Manual for Western Washington* (Washington State Department of Ecology, April 2005) during 2006. The technical assistance and regulatory revisions prepared under this grant are proposed to be considered and adopted as part of the same work program as the new stormwater management manual.



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Scope of Assistance:

The kickoff meeting with Snohomish County staff occurred on June 20, 2005. At that meeting, County staff provided direction to the consultant team on areas of emphasis for LID regulatory assistance. These areas included:

- Provide a global strategy for implementing LID
- Review the stormwater code, 30.63
- Review the draft Critical Areas Ordinance and identify areas where LID might be incorporated
- Review Engineering Design & Development Standards

The specific technical assistance provided under this grant included:

- Developing strategies to minimize impervious surfaces that included examining the street, parking, use, height, density/dimension, and native vegetation retention/restoration standards.
- Review and recommendations on the Reduced Drainage Discharge Demonstration Program (Chapter 30.34B SCC) related to local concerns that:
 - It is applicable only to sites with a predominance of infiltrative soil types
 - In an urban setting, 60-percent forested cover or 100-percent infiltration may not be feasible
 - The code does not educate developers on LID techniques or provide technical standards for engineered LID facilities
 - Developers may consider requests for deviations onerous in terms of justification and documentation
- Preparation of a new chapter for LID projects that describes the site analysis process, provides interim recognition of LID BMPs found in the 2005 DOE Manual until Snohomish County adopts a new stormwater management manual, and establishes a minimum standard for implementation of LID BMPs
- Preparation of regulatory language that addresses ongoing access to and maintenance of LID facilities
- Review and amendment to Chapter 20.25 SCC to require a minimum standard for landscape area soils
- Review and recommendation that the Draft Critical Areas Regulations (June 2005 draft) include bioretention as an approved BMP

Findings and Observations:

The consultant team's review focused first on existing code that is intended to provide opportunities to implement LID. While the intent of SCC 30.34B, Reduced Drainage Discharge Demonstration Program, is clear, there are several issues that may limit its effectiveness in implementing LID. The proposed



changes are intended to broaden the applicability and availability of LID techniques. These changes will recognize a wider variety of sites and uses while removing perceived hurdles to LID projects.

In terms of a global strategy, the proposed chapter provides education and standards. As LID BMPs gain wider acceptance in the development community and the staff develops a history with implementation and oversight of facilities, the County may wish to transition to the approach that King County has taken in requiring small-scale, dispersed facilities as the primary stormwater BMPs rather than alternative standards.

In terms of the land use and site design components of LID, the consultant team evaluated whether the code allows clustering to minimize the development envelope and whether Public Works standards can be modified to reduce the impervious surface coverage of conventional development. Areas of emphasis included issues raised by staff at the initial meeting such as parking, building height, density, tree retention, and street standards.

Staff requested that the consultant team review the EDDS with particular regard to infiltration standards. The EDDS describe conventional rather than LID BMPs and, therefore, do not address or specifically conflict with the standards for BMPs in Appendix C of Volume III of the 2005 DOE Stormwater Management Manual. Further, as proposed, the LID BMP standards referenced in proposed SCC 30.63C are intended to be alternative to those in the EDDS. The consultant team noted several distinctions between the requirements for infiltration in the EDDS and for bioretention in the DOE Manual.

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Scope of Assistance:

The kickoff meeting with Thurston County occurred on June 27, 2005. Mr. Mark Swartout of Thurston County assembled a very knowledgeable group that included the Thurston County Fire Marshal, planners and engineers from the Thurston County Development Services Department, and the cities of Lacey and Tumwater.

At that meeting, Thurston County staff asked the consultant team to review an extensive list of code citations, including several new proposed ordinances. Because Thurston County was one of the earlier communities that we worked with, prioritizing the effort to something reasonable, took considerable effort. The following are the areas of emphasis that staff directed the consultant team to pursue:

- Draft Stormwater Management Manual
- Public Works Standards
- Open Space Standards
- Forest Practices
- Draft Critical Areas Regulations



This direction resulted in the preparation of the following work products:

- Preparation of revisions to Draft Stormwater Management Manual to integrate LID
- Preparation of a new Landscaping and Native Vegetation Retention chapter
- Recommendations on modifications to Forest Practices standards to provide for tree retention for Class IV Conversions
- Review of impervious surface and other bulk/dimensional requirements from the Thurston County zoning code

Findings and Observations:

The Thurston County Code generally contains very few impediments to the implementation of LID. The consultant team's review of both existing and proposed regulations found little that would preclude the use of LID.

For the purposes of LID, clustering is a good tool to reduce impervious surfaces by confining the building envelope and to allow the preservation of native forest areas. The existing Planned Rural Residential Development standards do not refer to preservation of native open space as a justification for clustering. The consultant team recommends that native forest areas be preserved as open space areas.

In the course of reviewing Thurston County's zoning and subdivision regulations, the consultant team found that the prescriptive requirements for passive open space were substantially less than many Western Washington jurisdictions. As a result, a new native vegetation and open space retention chapter was prepared for the county code that specifies standards for open space and native vegetation retention by zone.

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Scope of Assistance:

The kickoff meeting with Whatcom County staff occurred on May 26, 2005. At that meeting, County staff provided direction to the consultant team on areas of emphasis for LID regulatory assistance. These areas included:

- A minimum set of standards to identify an LID project
- Draft code provisions for addressing LID subdivisions
- Recommendations on legal mechanisms to guarantee long-term responsibility for LID facilities

These policy directions resulted in the preparation of the following:



- Draft of new Section 20.80.637 WCC that establishes minimum standards for and LID project including standards for residential uses, non-residential uses, new roads, and soil preservation and/or amendment
- Preparation of a new Planned Low Impact Development (PLID) chapter that provides incentives for applicants proposing LID subdivisions. The draft regulatory language includes standards for impervious surface cover, native forest, and soil preservation and/or amendments, as well as administrative provisions that encourage early coordination with Whatcom County staff
- Research of available maintenance covenants for LID facilities
- Preparation of a maintenance manual for LID facilities

Findings and Observations:

As is illustrated by the scope of work prepared for this grantee, concerns were raised about the long-term maintenance and effectiveness of LID techniques.

The second meeting involved review of the technical assistance materials. Because the meeting was focused on reviewing the materials, it was unclear to the consultant team if the Public Works Department's threshold concerns about maintenance had been satisfied. This may be an outstanding issue that could delay implementation.

Policy documents exist within Whatcom County which include specific language supporting the use of LID (e.g., the Birch Bay Neighborhood Plan). Moreover, Whatcom County currently has some LID BMPs adopted for its stormwater special districts. These LID alternatives would be enhanced by recognizing the full suite of LID BMPs through adoption of the *Low Impact Development Technical Guidance Manual for Puget Sound* (Puget Sound Action Team, January 2005) and/or the *Stormwater Management Manual for Western Washington* (Washington State Department of Ecology, April 2005).